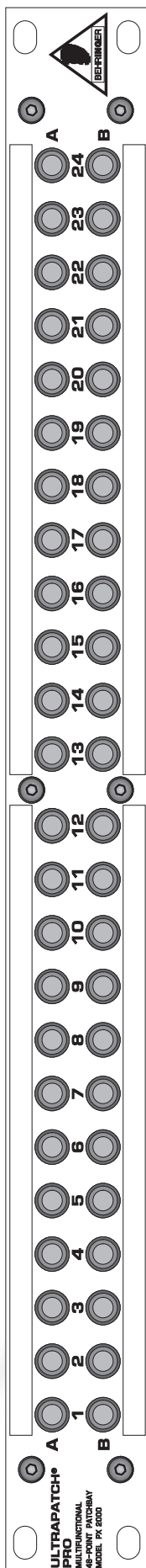


ULTRAPATCH PRO PX2000



User's Manual Bedienungsanleitung



Version 1.1 May 1998



www.behringer.de

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Welcome to Behringer!

Thank you very much for expressing your confidence in Behringer products by purchasing the ULTRAPATCH PRO PX2000.

A patchbay allows to patch the audio signals of most components in your studio from a central point and send them to other units, which makes your entire cabling better structured and is indispensable for professional work. If you want to use your studio as effectively as possible then it is preferable to use a complete patchbay wiring scheme, but even less sophisticated patchbay solutions will benefit smaller studio configurations.

1. Patchbay configuration

The majority of commercially available patchbays include two rows with 24 phone jacks each in a 19" 1 HU rack panel. On the rear, either a corresponding number of phone jacks or contacts for soldering signal leads can be found. Each group of four of these phone jacks forms one module. The configuration of some patchbays can be changed by inserting jumpers or turning individual modules.

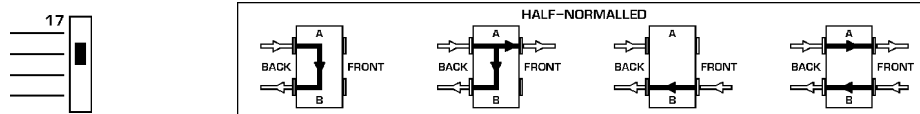
With the Behringer ULTRAPATCH PRO PX2000 you own an easy-to-use 24-patchbay offering phone jacks throughout, which can be operated in four different modes simply by setting a switch on the upper panel (example: module 17):

1.1 Parallel



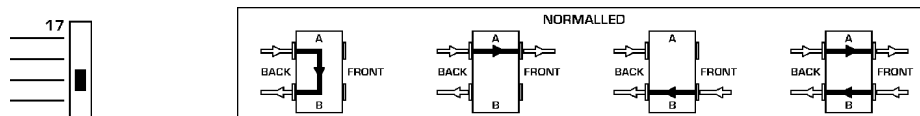
In this mode, all terminals of one module are interconnected. This configuration doesn't make sense at first glance but is used to split up and send *one* audio signal (e.g. aux send) to several destinations (e.g. effects devices).

1.2 Half-normalled



In this configuration, the contacts of the two jacks on the rear are interconnected. When you insert a plug into the upper front jack, the signal routed through the rear path is not interrupted. Only when the lower front jack is used will the rear-panel route be split up, so that the two upper and the two lower phone jacks are connected to one another. This configuration is called "input break" and is used mainly for insert paths. So you can easily patch the signal from a mixing console channel at the patchbay without interrupting the signal flow in the channel.

1.3 Normalled



Here, and in contrast to the "half-normalled" setup, the signal route of the rear phone jacks is interrupted when you insert a plug both into the upper and lower front jacks.

1.4 Open



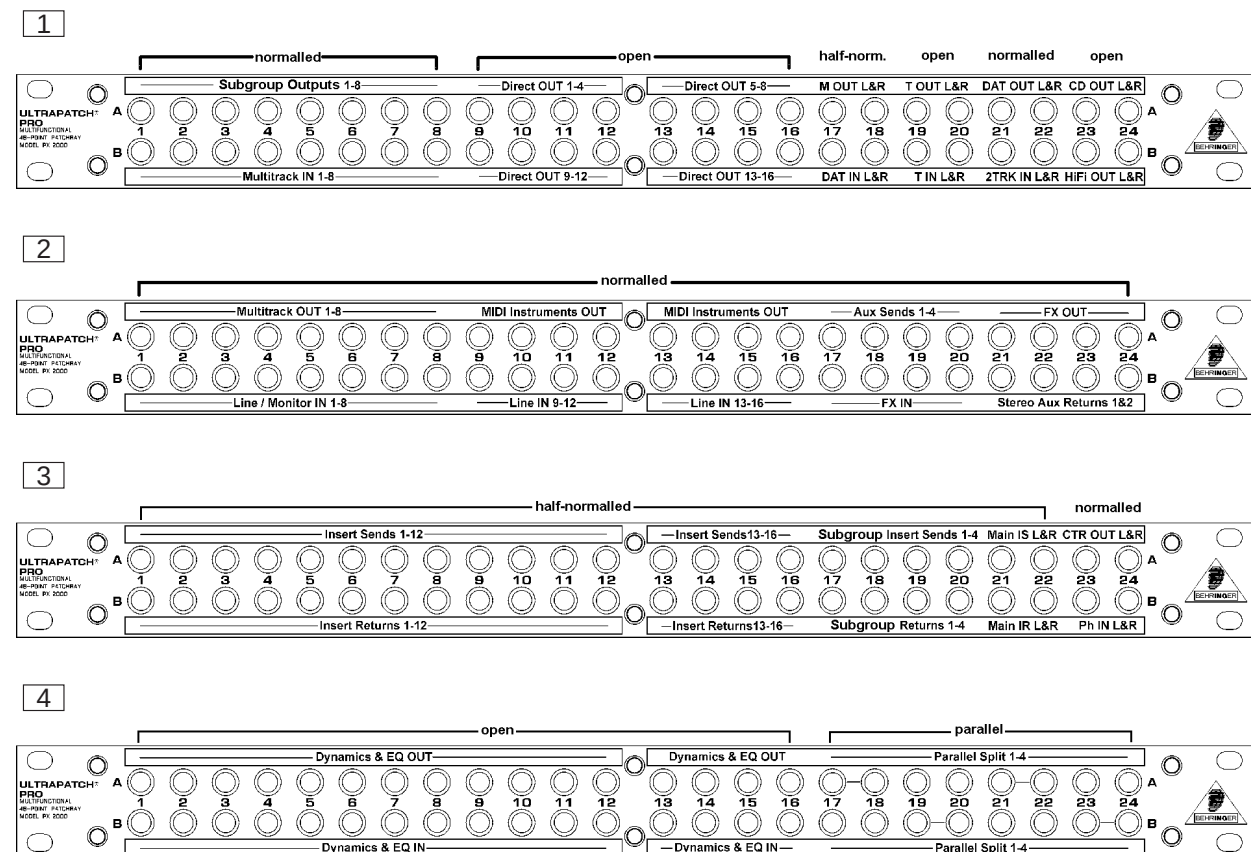
This mode is used to connect devices such as sound modules or CD players having no inputs of their own. This saves space, as you can route the left and right outputs to one module (left - top; right - bottom) or patch two devices to one module (top and bottom). Effects devices and 2-tracks can be configured this way, so the inputs and outputs are positioned on top of each other.

Basically, the inputs are routed to the bottom and the outputs to the top rear-wall connectors. Avoid routing digital signals over a patchbay as the pulse signal used for the transmission of such signals causes heavy interference in analog signals. Additionally, normal patchbays change the impedance of the digital cable route, which causes interference in the digital path. Use the Behringer ULTRAMATCH SRC2000 specifically designed for this and other digital signal-related functions.

Microphone inputs operate at a level several orders of magnitude lower than line levels (+4 dBu or -10 dBV). Therefore, they should never be routed via a patchbay. In any case, patching in a field with 48 V DC (phantom power) flying about is to be avoided at all costs. It is best to plug mics directly into the mixing console or via special XLR-type wall boxes connected to the mic inputs of the console by good-quality balanced multicore cables (2-cond. + shield).

2. Patchbay organization

Let us give you an example configuration that shows how you can most effectively use your patchbays. We assume you own a mixing console with 16 mic/line inputs plus inserts, 8 direct outputs, 8 subgroups with 4 inserts, 4 aux paths with 2 stereo returns and one stereo master output including insert jacks. Added to this we have an 8-track recorder (digital or analog), a few pieces of outboard equipment (FX, dynamics & EQ's), a CD player, tape deck, HiFi system and a headphones amp:



In the first eight modules of patchbay **1** the subgroup outputs are directly connected to the corresponding multitrack inputs. In addition to that it is also possible to record the signals coming from a subgroup on a different track of the multitrack. To save space and provide a clearly structured configuration, the direct outputs are connected both to the top and bottom jacks. Modules 17 & 18 are the stereo master output, which is half-normalled and thus allows for recording both to the DAT recorder and the tape deck, simply by patching it accordingly. Modules 19 & 20 (tape deck) are open, because it does not make sense connecting the inputs and outputs of the tape deck. 21 & 22 are normalled and route the DAT recorder outputs to the 2 TRK-ins of the mixing console. So it always is possible to control the recorded data on the 2-track from the mixing console. The CD player and the HiFi system are connected to modules 23 & 24, which are open, because they only serve as a source.

In patchbay **2** the first 16 modules are normalled (1 through 8 IN could also be used to connect the corresponding monitor inputs - if the console has a separate monitor section). MIDI devices such as samplers, expanders, keyboards, etc. are usually set up in every corner of the room. To make the cabling better structured we route these units to modules 9 through 16. This allows further workmanship of the MIDI devices at the mixing console. Modules 17 through 20 are normalled and have the FX inputs and the aux sends connected, 21 through 24 are also normalled and are patched to the two stereo aux returns with the FX outputs.

In patchbay **3**, modules 1 through 16 are for the channel insert. These modules are half-normalled, so that you have an additional route for the channel signals. The same applies to the insert paths of the sub-groups and the master

output. The headphones amp is connected to 23 & 24, which are normalled and connected to the control room outputs of the mixing console. Of course, you can also use pre-fader aux paths for the headphones mix.

Patchbay ⁴ manages the dynamics and frequency-processing devices in an open configuration (modules 1 through 16). Multigates and compressors should be used here, in particular. Modules 17 through 24 are used to provide a "parallel split", i.e. two modules are patched to each other on the rear with one patch cord, so that you can split up a signal applied on the front panel to several destinations. These modules have a parallel configuration.

It should be noted that patchbays should be placed one below the other in such a way that the patch cords won't hang all over the patchbays. In our example you don't have to span great distances, for instance, to patch the dynamics and EQ's to the insert paths.

3. Looming problems

Loom wiring is an art unto itself, and it is worth taking time out to get it right. First off, it is important to avoid earth loops (a looped wire acts an aerial, picking up hum and electromagnetic radiation). Think of a tree. Every part of that tree is connected to every other part, but only by one route. That's how the total earth picture for your entire studio should look. Don't take the earth off your power cable plug to reduce audible 50 Hz mains hum. Rather you should be looking at disconnecting the signal screen somewhere (one or several audio cables).

It is good practice to ensure that all screens are commoned at the patchbay, in which case all unearthed equipment would pick up earth from this point via a single screen (more than one route = an earth loop), while mains-earthed equipment would have all screens cut at the equipment end.

Some quality equipment has an independent signal and mains earth. In this case at least one screen should carry earth to the equipment. Sometimes the only way to find out is "suck and see".

Take care to ensure that using the patchbay does not disturb the studio's earth architecture. Always use short as possible patch leads with the screen connected at both ends.

Having designed mains hum out of the system, make up your cable looms from the patchbays outwards, and use cable ties, flexible sheaths, multicores, etc. to keep the back of your racks tidy.

4. Specifications

Dimensions	Width 482.6 mm (19") Height 1 HU Depth 93 mm	Connectors 1/4" jack unbalanced
Weight	ca. 1,8 kg	BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

5. Warranty

§ 1 WARRANTY CARD

To be protected by this warranty, the buyer must complete and return the enclosed warranty card (signed/stamped by retail dealer) within 14 days of the date of purchase to BEHRINGER INTERNATIONAL (address see § 3). Failure to return the card in due time (date as per postmark) will void any extended warranty claims.

§ 2 WARRANTY

BEHRINGER INTERNATIONAL warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase, in accordance with the warranty regulations described below. If any defects are found in the materials or workmanship, or if the product fails to function properly within the specified warranty period, BEHRINGER INTERNATIONAL shall, at its sole discretion, either repair or replace the product. If the warranty claim proves to be justified, the product will be returned freight prepaid by BEHRINGER INTERNATIONAL within Germany. Outside of Germany, the product will be returned at the buyer's expense.

Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

To obtain warranty service, the buyer must call Behringer GmbH during normal business hours BEFORE returning the product (Tel.: +49 (0) 21 54 / 92 06 66). All inquiries must be accompanied by a description of the problem. BEHRINGER INTERNATIONAL will then issue a return authorization number. The product must be returned in its original shipping carton, together with the return authorization number, to the following address:

BEHRINGER INTERNATIONAL GmbH
Service Department
Hanns-Martin-Schleyer-Str. 36-38
D - 47877 Willich-Münchheide

Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

Warranty services will be furnished only if the product is accompanied by an original retail dealer's invoice. Any product deemed eligible for repair or replacement by BEHRINGER INTERNATIONAL under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER INTERNATIONAL. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local

level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER INTERNATIONAL shall not be held responsible for any cost resulting from such a modification/adaptation. Free inspections, maintenance/repair work and replacement of parts are expressly excluded from this warranty, if caused by normal wear of the product.

Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ misuse, neglect or failure to operate the unit in compliance with the instructions given in the user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects that are caused by force majeure or by any other condition beyond the control of BEHRINGER INTERNATIONAL.

Any repair carried out by unauthorized personnel will void the warranty. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER INTERNATIONAL will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 4 weeks after notification, BEHRINGER INTERNATIONAL will return the unit C.O.D. with a separate invoice for freight and packing. Such cost will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER INTERNATIONAL.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER INTERNATIONAL to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER INTERNATIONAL exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS

This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.